
Microwear analysis of animal teeth from the Middle Palaeolithic sequence of Sesselfelsgrotte (Germany): ecology of prey species and duration of occupation in the Mousterian and Micoquian

Thorsten Uthmeier^{*1}, Florent Rivals², and Jürgen Richter³

¹Institut für Ur- und Frühgeschichte, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen (Germany) ORCID-ID 0000-0003-1265-061X – Allemagne

²Institució Catalana de Recerca i Estudis Avançats, Barcelona (Spain) and Institut Català de Paleoecologia Humana i Evolució Social (IPHES), Tarragona (Spain) ORCID-ID 0000-0001-8074-9254 – Espagne

³Institut für Ur- und Frühgeschichte, Albertus-Magnus-Universität zu Köln – Allemagne

Résumé

Land use patterns of Neanderthal groups, including seasonal mobility, are closely related to the ecological settings in which these groups lived. At Sesselfelsgrotte, a small cave in the Lower Altmühl Valley in Bavaria (Germany), the Middle Paleolithic part of the sequence, consistent with the first half of the last period of glaciation (MIS 5d to MIS 3), has yielded numerous assemblages of the Mousterian and the Micoquian/Keilmessergruppen, which were found interstratified in the Middle Paleolithic geological layers post-dating MIS 4 (G-Layer-Complex). Previous analysis of the lithic assemblages postulated a correlation between differences in the duration of occupation, closely related to divergent land use patterns, and the formal classification of the finds as Mousterian or Micoquian/Keilmessergruppen. Such changes in land use pattern evidently occurred in four cycles, each representing a new occupation of the region after a hiatus. The conclusion derived from these findings was the hypothesis that the two techno-typological industries belong to the same cultural entity, termed ‘Mousterian with Micoquian option’ (MMO). The objective of this study is to independently test this hypothesis by analyzing the tooth microwear patterns observable in the species found most abundantly at the site, horses and reindeer. The analysis of tooth microwear enables us to assess the duration of the occupations at the different stages of an occupation cycle and to establish the season or seasons during which the cave may have been occupied. The tooth microwear patterns observable in the horse and reindeer remains found in Middle Paleolithic levels of Sesselfelsgrotte revealed dietary habits noted in finds from the lower U layers that correspond to interglacial or warm interstadial conditions during the MIS 5, while those observed in the upper G-Layer-Complex indicate a steppe environment during the MIS 3. The analysis of the seasonality of occupations focused on assemblages from the G layers as the data base for the hypothesis of a Mousterian with Micoquian option at this site. It shows that, in the layers analyzed, all occupations took place during the summer season, but varied in length, as predicted by the Mousterian with Micoquian option model. These findings support the hypothesis that the shift from a circulating land use pattern with short-term residential camps at the beginning of a cycle and a radiating one

*Intervenant

with longer residential occupations of the site at the end of a cycle is the best explanation for the varying frequency of bifacial tools, including Keilmesser. The lack of significant differences in seasonality (all occupations occurred during the warm season) indicates that the season was not the principal factor influencing the duration of Neanderthal occupations at Sesselfelsgrotte; instead, increasing knowledge of the resources available in the region and the transfer of this knowledge, most probably within the same regional group, is likely to have been the determining aspect.

Mots-Clés: Microwear, animal teeth, ecology, Middle Palaeolithic, Sesselfelsgrotte